DOCUMENT RESUME

ED 318 455 IR 014 370

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TITLE The Diffusion of Instructional Development in the Newfoundland School System.
PUB DATE 88
NOTE 15p.; For related papers, see IR 014 371-372.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Competence; Elementary Secondary Education; Foreign Countries; Higher Education; *Instructional Development; *Librarian Attitudes; Library Education; *Media Specialists; Questionnaires; State Surveys; Teachers
IDENTIFIERS Canada; *Newfoundland; *Teacher Librarians

ABSTRACT

This document presents the first phase of a province-wide study which explored the knowledge and use of instructional development on the part of teacher-librarians in the formal school system. The instrument was a written questionnaire with three sections. Seventeen specific instructional development tasks and/or competency areas were derived from the 1982 "Association for Educational Communications and Technology (AECT) Task Force on Instructional Development Certification Report." Participants were asked to respond on three scales: knowledge of the task and/or competency, importance of the task to their role, and frequency of use of the task. A short attitude scale was used to establish participants' level of instructional development along a functional-to-conceptual continuum. Participants exhibited consistency in that task, and skill areas selected by the greatest number on the feelings of competency scale were also those deemed important and those used frequently by the largest percentage. Similarly, task and skill areas in which the fewest felt competent were also those deemed less important and those seldom used. Overall, teacher-librarians in the Newfoundland school system are knowledgeable about instructional development and employ instructional development strategies, at least at the functional level, in their roles. Data are presented in 10 tables. (19 references) (GL)

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The Diffusion of Instructional Development in the Newfoundland School System

by

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Introduction

Instructional development, slightly more than two decades old, is most frequently defined as "a systematic approach to the design, production, evaluation, and utilization of complete systems of instruction, including all appropriate components and a management system for using them" (Gustafson, 1981, p. 3). Instructional development did not represent a totally new or innovative concept: rather, it represented "an evolutionary step as people seek to improve their educational enterprise by making it more effective, efficient, and humane" (Knirk & Gustafson, 1986, p. 3).

Instructional development is an application of the field of educational technology. Many influences from the past merged together in the 1950s and 1960s, culminating in the movement known as educational technology. Saettler (1968) noted "It would be futile to designate any particular event or date to mark the beginning of a science or technology of instruction" (p. 47). The movement was created by the bringing together of three main thought streams, as described by Knirk and Gustafson (1986):

(a) the concept of instruction designed directly for the student, as opposed to audiovisual materials designed to aid the teacher;
(b) developments in learning theory;
(c) the post-war rapid advance in hard-ware technology and accompanying developments in software design, often labelled the 'systems approach.' (p. 1)

In the two decades of instructional development, two archetypes, according to Davies (1978a) have existed: the engineering archetype and the problem-solving archetype. The engineering archetype, instructional development at the functional, what-to-do level, "is reflected in the many instructional development models, exemplified by boxes and arrows with feedback loops, indicating a step-by-step approach to instructional development activity" (Davies, 1978a, p. 22).

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The problem-solving archetype, instructional development at the conceptual, how-and-why levels, can be more readily described as a chess game.

> Players engage in an intellectual activity for which there is no one set of appropriate moves. Intense concentration, ability to foresee future consequences of current actions, flexibility and the skills of observation, analysis, synthesis, and evaluation are prerequisites to success. (Davies, 1978a, p. 22)

In the problem-solving, conceptual approach there is no one best means and neither is there necessarily one best solution. Everything is dependent on the situation and the skills and expertise available.

Differentiating between the functional and conceptual levels of instructional development is not easy. Rather than discrete levels, they lie along a continuum. It is not the size or scope of the instructional development effort that is the differentiating variable, but the role which the instructional developer plays. Many of the same tasks may be undertaken in both approaches--analysing problems, developing objectives, designing learning activities, and so forth. But in functional instructional development the focus is fully on what the instructional developer does--the algorithm as described by Romiszowski (1981). At the conceptual level the focus becomes the how and why--the theories of learning and instruction and their application in the designing of solutions to instructional problems. The instructional developer, functioning at this level, is making use of a heuristic, as opposed to an algorithm.

It is only at the conceptual level that instructional development becomes a 'systems' as opposed to 'systematic' approach. It is also at this level that the instructional developer eventually becomes an indispensable member of the instructional team. Davies (1978b) notes:

> ... in doing instructional development we are involved in a cycle of task-oriented activities or steps which are descriptions of the duties and responsibilities performed. But parallel with this task-oriented cycle is another cycle involving the successive phases of the relationship between instructional developer and client ... It is this relationship which helps to prevent instructional development being directed only at solving immediate problems. (p. 112)

Instructional Development Diffusion

In the two decades since its emergence, what has happened to the notion of instructional development? In examining the professional literature it becomes obvious that instructional development is a recognized field of endeavor. For a number of years in North America there has been an instructional development journal for professionals. References to instructional development abound in the educational literature. Numerous books have been published on instructional development. Over forty models have been published. School library journals emphasize the need for instructional development competencies in the performance of teacher-librarian roles. A professional task force has published instructional development competencies with a view toward certification of instructional developers.

In practice the military makes use of instructional development to the extent that it has adopted, on a national scale, a particular model. Instructional developers are in great demand in business and industry. Instructional development courses are taught in many faculties of education, most frequently as part of graduate educational technology programs.

But what of the formal school system? It is surely that arena that educational technologists focused on in the 1950s and 1960s when they sought new systems to solve instructional problems. And with increasing emphasis on resource-based teaching and learning it is recognized that instructional development knowledge, skills, and competencies are essential to the instructional role. Dick and Carey (1978), Smith (1980), and Gorman (1978) recognize that instructional development activity comprises one of the major responsibilities of the teacher. Snelbacker (1987) notes

> The classroom teacher need not have the high level of expertise we might expect of a full-time instructional developer, but teachers do not need at least fundamental design strategies to plan, evaluate, and modify instruction as a regular and continued part of their classroom work. (p. 35)

The need for teacher-librarians to have instructional development competencies has been evidenced in the various standards and provincial guidelines. Media Programs: District and School (American Library Association, 1975) notes that teachers and teacher-librarians must be knowledgeable about "theories, principles, and methods of instructional technology" (p. 22). Focus on Learning (Alberta Education, 1985) describes the role of the teacher-librarian as "a full partnership with classroom teachers in planning, conducting, and evaluating instruction. [The role of the teacher-librarian includes] diagnosing, pre-

scribing, implementing and evaluating instructional strategies ... in cooperation with classroom teachers" (pp. 55-56).

In 1982 the Wilson Library Bulletin devoted a special issue to the instructional development role of the teacher-librarian. Loertscher (1982) developed a taxonomy for school librarianship in which levels 9-11, the highest levels, delineate the instructional role: "... instructional design from a basic unit level to a curriculum determination level; cooperative planning of units; team teaching" (pp. 417-421). Brown (1988) states "Qualified learning-resource teachers will have advanced training in instructional development as well as being experienced teachers" (p. 11).

Research studies in the area of teacher-librarianship indicate a significant time lag between the role as described in the literature and as practised by the teacher-librarian. Craver (1986) states

> The conclusions drawn imply that instructional design, while introduced as an officially sanctioned activity by the 1975 standards, was far from a practised reality as late as 1984. The gap that persisted between the initiation and acceptance of an idea continues to exist. (p. 190)

Instructional Development Knowledge and Use

What is the instructional development knowledge level of educators in various roles in the formal school system? Are teacher-librarians, district curriculum personnel, classroom teachers, and provincial program developers skilled in instructional development? Is knowledge of instructional development at the functional or conceptual level? Do educators in various roles consider instructional development important in the performance of their specific responsibilities? Do educators knowledgeable in instructional development make use of instructional development competencies in the performance of their specific responsibilities? It was questions such as these that guided the research of the authors in a province-wide study.

The Study

In seeking answers to such questions, one might first of all examine the preparatory programs of educators. In the province of Newfoundland there is only one university, and most educators complete degree programs at that institution. Undergraduate programs have no courses in instructional development, and it is

only since 1985 that one program, the degree program for elementary school teachers, has a general educational technology course requirements.

At the graduate level there is one course in instructional development. This course is a requirement of programs in educational technology and school librarianship. It is also an elective on a number of other graduate programs. There are a number of graduate level educational technology courses which also have an instructional development component. Many of these courses are also required on the educational technology and school librarianship programs. They are infrequently chosen as electives by graduate students in other programs.

Those most likely to be knowledgeable in instructional development, then, are educational technologists and teacher-librarians. Since there are only three educational technology positions in the provincial school system, many seek employment elsewhere. Within the formal school system there are approximately one hundred teacher-librarians designated as half-time or more. It was this group that were the participants in the first phase of the study, completed in November, 1988. Other phases of the research are ongoing.

Administration of the Study

Phase One of the province-wide study explored the knowledge and use of instructional development on the part of teacher-librarians in the formal school system. Teacher-librarians were selected on the basis of their current role in the school system: only those currently working as half-time or more teacher-librarians were asked to participate.

The instrument was a written questionnaire with three sections. Demographic information sought information on preparatory training programs. Seventeen specific instructional development tasks and/or competency areas were derived from the AECT Task Force on ID Certification Report (DID Newsletter, August 1982). They were reworded in accordance with the CSLA qualifications for school librarians (Haycock, 1983). Participants were asked to respond on three scales: knowledge of task and/or competency; importance to role; frequency of use. A short attitude scale was used to establish participants' level of instructional development along the functional to conceptual continuum.

Instruments were distributed to 100 participants at the annual Educational Media Conference in October. Sixty were

returned, for a response rate of sixty percent. Data were analysed and summarized in frequencies and percentages.

The Results of the Study

Demographic data indicates that the majority of teacher-librarians have considerable preparatory training, although not necessarily in the area of school librarianship (see Table 1). Specific programs which would indicate exposure to instructional development content include the Masters' in Learning Resources, completed by 22%, and the undergraduate Learning Resources Diploma to a lesser degree, completed by 37%. Some of those completing other Master of Education programs may have completed such courses on an elective basis.

Table 1.

Respondent Preparatory Training Programs

Degree	Number	Percentage
Master of Education	31	52%
Masters (Learning Resources)	13	22%
Learning Resources Diploma	22	37%
Bachelor of Education	22	37%
Two Bachelor Degrees	34	57%

Respondents were asked to indicate whether or not they had taken the one instructional development course available at Memorial University, or other general educational technology courses with an instructional development component (see Table 2). Nearly half had completed one graduate level course in instructional development. The particular course referred to is a practicum, designed to provide thorough functional level experience in instructional development. Over one third of those who had not completed the instructional development course had completed general educational technology courses with at least a brief instructional development component.

Table 2.

Respondents Completing Courses in Instructional Development or with Instructional Development Components

Courses	Number	Percentage
Instructional Development	26	43%
General Educational Technology	23	38%

Respondents were asked to indicate years of teaching experience. They are a very experienced group, with approximately three quarters having at least ten years experience (see Table 3). Much of that experience would be as classroom teachers rather than as teacher-librarians, since it is only in the past decade that school library positions have been filled in any but the large urban centres. Even now there are few half-time or more teacher-librarian positions throughout the province.

Table 3.

Respondents' Years of Teaching Experience

Years	Number	Percentage
0 - 4	6	10%
5 - 9	6	10%
10 - 14	23	38%
15+	23	38%

Part Two of the questionnaire dealt with the specific instructional development competency areas. Participants responded to each competency areas on three scales. The first scale required that participants indicate their feelings of competence in terms of their knowledge and ability for each of seventeen instructional development tasks/skills (see Table 4). Considerably more than half of respondents indicated feelings of competency in all task/skill areas. Specific task areas in which most respondents felt competent included developing behavioral objectives, determining appropriate resources, evaluating instructional content, revising content, communicating effectively, and consulting with individuals. Those task/skill areas

in which less than three quarters of respondents felt competent included conducting environment analysis, sequencing learning activities, and conducting workshops or inservice activities.

Table 4.

Respondents Expressing Feelings of Competence in Specific Instructional Development Tasks and Skills

ID Task/Skill	Number	Percentage
Conduct Needs Assessment	47	78%
Conduct Learner Analysis	45	75%
Develop Behavioral Objectives	52	87%
Conduct Environment Analysis	39	65%
Sequence Learner Objectives	46	77%
Sequence Content	47	78%
Sequence Learner Activities	40	67%
Determine Appropriate Resources	56	93%
Apply Learning Theories	45	75%
Evaluate Instructional Content	55	92%
Revise Instructional Content	53	88%
Create Instructional Modules	45	75%
Conduct Workshops/Inservice	38	63%
Communicate Effectively	53	88%
Consult With Individuals	55	92%
Consult With Groups	48	80%
Promote Instructional Development	46	77%

The second scale required that participants respond to each task/skill area in terms of perceived importance to the role of the teacher-librarian. Participants responded on a three-point scale of very important, important, not important (see Table 5). Most tasks/skills were perceived to be either very important or important by all participants. The three task/skill areas deemed very important by the largest number of respondents were determining appropriate resources, communicating effectively, and consulting with individuals. Those areas deemed not important by the largest number of respondents were developing behavioral objectives, applying learning theories, and conducting workshops/ inservice activities.

Table 5.

Perceived Importance of Specific Instructional Development Tasks/Skills to Teacher Librarian Role

ID Task/Skill	Very Important	Important	Not Important
Conduct Needs Assessment	58%	28%	2%
Conduct Learner Analysis	53%	35%	2%
Develop Behavioral Objectives	60%	25%	10%
Conduct Environment Analysis	33%	45%	7%
Sequence Learner Objectives	43%	47%	3%
Sequence Content	57%	30%	7%
Sequence Learner Activities	48%	33%	3%
Determine Appropriate Resources	85%	12%	2%
Apply Learning Theories	48%	40%	12%
Evaluate Instructional Content	47%	45%	2%
Revise Instructional Content	53%	35%	5%
Create Instructional Modules	55%	37%	5%
Conduct Workshops/Inservice	47%	37%	12%
Communicate Effectively	75%	20%	2%
Consult With Individuals	72%	23%	2%
Consult With Groups	65%	27%	7%
Promote Instructional Development	55%	32%	5%

The third scale required that participants respond to each task/skill area in terms of frequency of use in their roles as teacher-librarians. Participants responded on a three-point scale of frequently, occasionally, seldom (see Table 6). Approximately three quarters of respondents indicated that they performed a number of task/skills frequently: these include determining appropriate resources, communicating effectively, and consulting with individuals. Those task/skills used seldom by a considerable number of respondents include conducting learner analysis, conducting environmental analysis, applying learning theories, creating instructional modules, and conducting workshop or inservice activities.

Table 6.

Perceived Frequency of Use of Specific Instructional Development Task/Skills to Teacher-Librarian Role

ID Task/Skill	Frequently	Occasionally	Seldom
Conduct Needs Assessment	43%	32%	15%
Conduct Learner Analysis	35%	35%	20%
Develop Behavioral Objectives	50%	32%	10%
Conduct Environment Analysis	27%	38%	18%
Sequence Learner Objectives	43%	32%	15%
Sequence Content	53%	22%	13%
Sequence Learner Activities	42%	35%	10%
Determine Appropriate Resources	82%	8%	2%
Apply Learning Theories	38%	35%	16%
Evaluate Instructional Content	50%	32%	5%
Revise Instructional Content	43%	35%	8%
Create Instructional Modules	43%	30%	16%
Conduct Workshops/Inservice	22%	38%	28%
Communicate Effectively	72%	16%	2%
Consult With Individuals	73%	15%	2%
Consult With Groups	47%	32%	12%
Promote Instructional Development	50%	25%	13%

Part Three of the questionnaire consisted of a series of nine statements reflecting either a functional or a conceptual view of instructional development. Participants were required to respond on a four point Likert scale from strongly agree to strongly disagree. They were also required to indicate the statement most preferred and that least preferred. Four statements, numbers 1, 3, 4, 8, describe functional instructional development. Five statements, numbers 2, 5, 6, 7, 9, describe conceptual instructional development.

Participant responses to those statements reflecting functional instructional development (see Table 7) indicate strong agreement with most statements. The noted exception is statement one, which described a strictly algorithmic approach to instructional development activity. Nearly all respondents certainly view instructional development as functional in nature.

Table 7.

Respondent Attitudes Toward Statements Reflecting Functional Instructional Development

Statement Number	SA	A	D	SD
1	5%	38%	32%	10%
3	48%	45%	2%	2%
4	70%	23%	3%	-
8	30%	63%	-	-

Participant responses to those statements reflecting conceptual instructional development (see Table 8) also indicate majority agreement with all statements. It is notable that there is slightly higher disagreement with most statements: from twelve to seventeen percent on four of five statements.

Table 8.

Respondent Attitudes Toward Statements Reflecting Conceptual Instructional Development

Statement Number	SA	A	D	SD
2	50%	47%	-	-
5	20%	42%	12%	-
6	18%	53%	15%	2%
7	30%	48%	8%	7%
9	25%	55%	8%	6%

In selecting most preferred statements, those describing the functional view appealed to a greater percentage of respondents than those describing the conceptual view (see Tables 9 and 10). It would seem that teacher-librarians recognized both levels of instructional development and agree that instructional development can be practised at different levels or using a variety of approaches, but their preference, given their roles, is for the functional approach.

Table 9.

Respondents Preferring Functional, Practical Definitions

Statement Number	Number	Percentage
1	0	0%
3	14	23%
4	22	37%
8	3	5%

Table 10.

Respondents Preferring Conceptual, Problem-Solving Definitions

Statement Number	Number	Percentage
2	4	6%
5	3	5%
6	1	2%
7	2	3%
9	1	2%

Summary

Participants in the study exhibited consistency in that task and skill areas selected by the greatest number on the feelings of competency scale were also those deemed important and those used frequently by the largest percentage. Similarly task and skill areas in which the fewest felt competent were also those deemed less important and those seldom used, for the most part.

Overall teacher-librarians in the Newfoundland school system are knowledgeable about instructional development and employ instructional development strategies, at least at the functional level, in their roles. No doubt the preparatory programs, with an integrated approach and housed in a Faculty of Education as opposed to a Library School as is common in other provinces, has contributed to knowledge and use of instructional development. Other phases of the study, currently ongoing, are exploring teacher-librarian indepth knowledge of conceptual instructional

development, through, interviews and knowledge level of others in the formal school setting.

Research studies (Staples, 1981; Turner, 1982; Royal, 1983) indicate that instructional development knowledge and use by teacher-librarians remains at a low level, and that training programs place little emphasis on instructional development competencies. Perhaps a comparative study at the national level, of teacher-librarians trained through Faculty of Education programs as opposed to School of Library Science programs, is indicated.

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